

## STREPSIPTERA AND LEAFHOPPERS.

By HENRY E. GRAY,<sup>1</sup> Urbana, Illinois.

The parasitism of insects by Strepsiptera, the twisted-winged insects, has long been a fact of general knowledge among workers in entomology. However, only a few records exist which note the degree of parasitism by the Strepsipterans and most of these are confined to the Strepsiptera attacking Hymenoptera.

Bohart (1941) published a taxonomic revision of the Strepsiptera of North America. Later (1943) the same worker published a synopsis of the genus *Halictophagus* which normally parasitizes leafhoppers, fulgorids, and treehoppers. A key to the North American species of this genus is included in the latter publication.

During the summer of 1952 a large number of leafhoppers was collected from an ecology study plot located on the University of Illinois campus. The plot had been unmowed for several seasons; consequently there was plenty of protection for the overwintering leafhoppers. Several kinds of plants were present on the plot, but quackgrass, *Agropyron*, was the most prevalent. The leafhoppers were feeding on this grass and the collections were made by sweeping with a 12 inch net.

Three species of leafhoppers, *Parabolocratius major* Osborn,<sup>2</sup> *Draeculacephala antica* (Walker),<sup>3</sup> and *Paraphlesius irroratus* (Say),<sup>4</sup> were the ones most commonly collected. Only one species, *Draeculacephala antica* was found to be parasitized by the Strepsipterans.

In early August only a few specimens of *D. antica* were taken in the collections and none of these were noted to be parasitized. The writer was absent from the campus during the last two weeks of August and no collections were made at that time. By early September *D. antica* was the most predominant of any of the species of leafhoppers present. The specimens of *D. antica* collected in early September were heavily parasitized by a Strepsipteran which was later identified as *Halictophagus acutus* R. Bohart.<sup>5</sup>

On September 10 and 11 a total of 122 specimens of *D. antica* was collected and of these 105 specimens, 86.0%, were found to

<sup>1</sup> Contribution from the Entomological Laboratories of the University of Illinois.

<sup>2, 3, 4</sup> Determined by Dr. Milton Sanderson, Illinois State Natural History Survey, Urbana, Illinois.

<sup>5</sup> Determined by Dr. R. M. Bohart, University of California, Davis, California.

be parasitized. Some of the leafhoppers had as many as 3 to 5 parasites per individual. All of the parasites found were females, the males had emerged prior to the time of collection. The male pupal cases were still present on the leafhoppers. It was also of interest to note that the female parasites were located on the ventral side of the abdomen, whereas, the male parasites were located on the dorsal side. Both sexes of the leafhoppers were parasitized and often both sexes of the parasite were found upon the same leafhopper.

The numbers of specimens of *D. antica* in the collections dropped off very sharply after Mid-September. By September 25 only a few specimens could be found and seldom was one of those collected found to be parasitized.

The effects of the parasites upon the leafhoppers is unknown. Neither is it understood why the parasites were so host specific. The leafhoppers appeared to be normal in every respect and apparently their activities were not inhibited.

#### REFERENCES

- Bohart, R. M.** 1941. A revision of the Strepsiptera with special reference to the species of North America. Univ. Calif. Pub. Ent., 7: 91-160.
- . 1943. New genus of *Halictophagus* with a key to the genus in North America. Ann. Am. Ent. Soc., 36(3): 341-359.
- Pierce, W. D.** 1918. The comparative morphology of the order Strepsiptera together with records and descriptions of insects. Proc. U.S. Nat. Mus., 54: 391-501. 15 pl.
- Salt, George.** 1927. Notes on the Strepsiptera and their Hymenopterous hosts. Psyche, 34: 182-192.

---

**Wanted:** Brief notes from 4 to 30 lines to fill such spaces as this.